REMARKS

Claims 1-26 are pending in the application. Claims 1, 2, 5, 7, 9, 13-15, 18, 20, 22 - 23 and 26 have been amended. Support for the added claim term "proposed information system" is found at least on Specification p. 7, line 9, as originally filed. Support for the claim language further detailing what an information system includes is found at least on Specification p. 5, line 18, through p. 6, line 2, as originally filed. No new matter is introduced.

Replacement drawings are being co-filed with this amendment. No new matter is being introduced. Acceptance is respectfully requested.

The Abstract has been objected to because of an informality in lines 4-5. Specifically, the first sentence of the Abstract does not end with a period. The foregoing amendment to the Specification on page 36 lines 4-5 corrects this informality by adding a period at the end of the sentence. No new matter has been introduced by the amendments to the Specification. Acceptance is respectfully requested.

The Specification has also been amended to correct minor typographical errors. Specifically, on page 7 line 8 the input module is referred to as 44 whereas Fig. 2 references the input module as 46. Accordingly, the specification has been amended so as to be consistent with the reference label in Fig. 2. No new matter has been introduced by the amendments to the Specification. Acceptance is respectfully requested.

Claim 23 has been objected to because of an informality. In accordance with the Examiner's suggestion, Claim 23 has now been amended by replacing "comparing" with the term "compared." No new matter has been introduced by the claim amendment. Acceptance is respectfully requested.

Claims 1, 3-8, 14 and 16-21 have been rejected under 35 U.S.C. § 101. In support of this rejection, the Office Action states the claimed invention is directed to non-statutory subject matter.

In accordance with the Examiner's proposed amendments, Claims 1 and 14 have now been amended to clarify the subject matter of the claimed invention. The Office Action states that none of the limitations of Claim 1 describe any type of "computer-implemented steps". Similarly, it is stated that Claim 14 should include "computer system hardware components and software components in memory which will be required to implement the method." Following

the Examiner's proposed language, base Claim 1 has now been amended to recite computer implemented steps and Claim 14 has been amended to recite computer system hardware and software components. No new matter has been introduced. Acceptance is respectfully requested. Accordingly the rejection under 35 U.S.C. § 101 is believed to be overcome.

Claims 1-4, 9-13, 14-17 and 22-26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson et al. (U.S. 6,327,551), hereafter "Peterson" in view of McDonald et al. (U.S. Patent 5,881,268) hereafter "McDonald".

As used in the present invention, an "information system" typically includes a computer system architecture, distributed software applications, various system hardware (clients, servers, data stores) and system networking components. During the design and implementation of information systems, traditional system engineering typically proceeds through several development phases from conception through deployment. However, there are no checkpoints to determine whether the design or implementation will satisfy a set of predefined business or technical performance criteria. Without such predictive assessment, a significant amount of time and investment may be wasted in developing information systems that may not be able to satisfy the business requirements within time and budget constraints. (Specification, p. 5, line 16, through p. 6, line 2, and Fig. 1.)

The present invention provides a multi-phased development (creation) of information systems utilizing predictive modeling to validate the design and construction of a proposed information system at each phase of development. The invention enables early detection of unacceptable designs and implementations early in the development life cycle. This avoids significant losses in investment. (Specification, p. 4, lines 3-26.)

The present invention further provides a system and method for improving the accuracy of predictive modeling of a proposed information system. This is achieved by modeling a dynamic representation of the business solution and by automating calibration of the predictive model against predefined performance benchmarks. In this way, the present invention is able to create improved predictive modeling capacity throughout multiple phases of development. (Specification, p. 6 line 27 - p. 7 line 3.)

Peterson provides a system for designing product specifications for a multitude of products. This system employs a user centered approach which begins with a usage

specification. The usage specification is defined by a user input series of goals, constraints and performance characteristics. From the usage specification, further specifications (e.g., conceptual specification, functional specification, interface specification and device specification) are developed. From the number of specifications, representations of varying degrees of abstraction and detail together with corresponding prototypes can be produced. Prototyping, validation and verification can be utilized at specific stages of the design process. (Col. 6, lines 22-45, Col 7, lines 3-22.) The result of this system is a final design specification that can be used for implementation of the product. In this way, Peterson enables a user to generate a design specification ***prior*** to implementation of the desired product. (*See* Abstract.)

In contrast to the present invention, Peterson deals with product design specifications and NOT the designing of an information system. Further, Peterson does not provide a means to ensure that the design satisfies the set of performance requirements at each design phase. Instead, Peterson verifies and validates prototypes and the various specifications against each other at certain design phases. Peterson results in a final design specification intended to be used throughout the implementation process but does not check performance of the to be implemented version at the multiple design phases. This is unlike Applicants' claimed invention, which uses "*at one or more design phases, validating design of an information system by comparing performance metrics calculated from a predictive model of the design against a set of predefined performance requirements, ensuring that the design satisfies the set of performance requirements at each design phase*".

McDonald, like Peterson, does not deal with the designing of an information system as in the claimed invention. Instead, McDonald is directed to software application/program design.

McDonald describes a tool and method that helps identify an optimum software application/program design for an existing distributed processing environment. The disclosed tool provides a performance analysis for comparing various application program design alternatives and for determining optimal distribution of objects prior to writing or generating the program code. The tool of McDonald allows the user (application developer) to define different parameters of the application and distributed system and then analyze the new resource demands for each process of the distributed processing system. (Col. 2, lines 58 - 67.) In this way,

McDonald provides performance projections for designs of an application over a known distributed processing system. (Col. 3, lines 1 - 23.)

In McDonald, the user makes entries to specify, among various known characteristics, hardware configuration (known set), the performance specifications of the application and target distribution system. (Fig. 3, block 42, Col. 4, lines 33-54, and Col. 5, lines 48-55.) The performance model is constructed from the user's specification.

In contrast, the present invention allows a user to input proposed design description and desired performance metrics of an information system not yet in existence (i.e., being developed/created). The invention system receives this descriptive input and transforms the descriptive input into quantitative data used for design of the proposed (not yet existing) information system. The output module outputs an initial design of the proposed information system meeting the input descriptive specifications and outputs an additional system design as an alternative. Thus, the present invention is not limited to the designing of an application program on an existing distributed processing system and determining an optimum program design relative to all the tested ones as in McDonald. That is, the present invention analyzes different system elements and whole system designs for purposes of developing (i.e., creating and designing) a desired (not in existence) information system. The present invention further provides predictions of performance of the information system under design. Such creating and designing of an information system and a tool for assisting such of the present invention is not implied or disclosed by McDonald *et al.*

Neither Peterson nor McDonald individually or in any combination imply, suggest or make obvious the claimed method or system for *"developing an information system through multiple development phases, the information system including system architecture, one or more software applications, system hardware and networking components, the method comprising: at one or more design phases, validating design of a proposed information system by comparing performance metrics calculated from a predictive model of the design against a set of predefined performance requirements, ensuring that the design satisfies the set of performance requirements at each design phase"* as claimed in base Claims 1 and 14 or the claimed method or system for developing *"...an information system...including system architecture, one or more software applications, system hardware and networking components, the method comprising: at one or*

more construction phases, validating a prototype of at least a portion of a proposed information system constructed from a validated design by comparing performance metrics calculated from a predictive model of the validated design against actual performance metrics obtained from the prototype, ensuring the prototype conforms to the predictive model at each construction phase," as claimed in base Claims 9 and 22. Dependent Claims 2-4, 10-13, 15-17 and 23-26 inherit these limitations from respective base claims. Thus, the § 103 rejection of Claims 1-4, 9-13, 14-17 and 22-26 as being unpatentable over Peterson in view of McDonald is believed to be overcome. Acceptance is respectfully requested.

Claims 5-7 and 18-20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson in view of McDonald, and in further view of Dellarocas et al. (U.S. Patent 6,370,681) hereafter "Dellarocas".

Dellarocas provides a mechanism for easily integrating existing software components into new applications. (col. 2, lines 64-66). Specifically, Dellarocas uses an architectural design language to enable a clear separation of the core functional pieces of an application (col. 3, lines 12-15). A process then constructs and transforms architectural diagrams of software architectures to integrate executable design elements into code modules (col. 3, lines 41-43). As a result, the architectural design language and transformations provide a system which can accurately and completely describe nontrivial applications and facilitate code-level and architectural-level software reuse. (Col. 3, lines 55-59.)

Like Peterson and McDonald, Dellarocas is not directed to designing of an information system as claimed in base Claims 1 and 14. Further, Dellarocas does NOT add to Peterson and McDonald the claimed feature of *"...at one or more design phases, validating design of a proposed information system by comparing performance metrics calculated from a predictive model of the design against a set of predefined performance requirements, ensuring that the design satisfies the set of performance requirements at each design phase."*

In contrast the present invention analyzes different system elements and whole system designs for purposes of designing a desired information system as defined by descriptive user input. Further, the present invention provides performance metrics calculated from a predictive model of the design and compares the calculated performance metrics *against a set of predefined performance requirements, ensuring that the design satisfies the set of performance requirements*

at each design phase. In this way, the present invention is capable of providing a multi-phased development of information systems utilizing predictive modeling to validate the design of an information system at each phase of development.

No combination of Peterson, McDonald and Dellarocas imply, suggest or otherwise make obvious each of the claim limitations of the base Claims 1 and 14. By virtue of their dependency on these base claims, dependent Claims 5-7 and 18-20 are likewise not made obvious by the cited art. Thus, the § 103 rejection of Claims 5-7 and 18-20 as being unpatentable over Peterson in view of McDonald and in further view of Dellarocas is believed to be overcome. Acceptance is respectfully requested.

Claims 8 and 21 were rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson in view of McDonald and in further view of Sebastian et al. (U.S. Patent Re. 36,602) herafter "Sebastian".

Sebastian provides a computer-based method and apparatus for the concurrent design of a part, the tool to make the part, and the processes used in making the part. The part design, the tool design, and the process design are carried out concurrently. This system of Sebastian is a single design phase in which all components are designed concurrently. In fact the purpose of Sebastian is to have *only* a single design phase (Col. 5, lines 11-19).

Sebastian does not add to Peterson and McDonald the missing claim features of *"developing an information system through multiple development phases, the information system including system architecture, one or more software applications, system hardware and networking components,"* and *"at one or more design phases, validating design of an information system by comparing performance metrics calculated from a predictive model of the design against a set of predefined performance requirements, ensuring that the design satisfies the set of performance requirements at each design phase*,"as claimed in base Claims 1 and 14.

Thus, no combination of Peterson, McDonald and/or Sebastian imply, suggest or make obvious the claimed process or system as claimed in base Claims 1 and 14. Claim 8 depends from base Claim 1 and Claim 21 depends from base Claim 14 and thus inherit these claim limitations. Thus, the § 103 rejection of Claims 8 and 21 as being unpatentable over Peterson in view of McDonald and in further view of Sebastian is believed to be overcome. Acceptance is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that Claims 1-26 are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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Dated: 9/19/05